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Evans & Sutherland is pleased to provide you with this 1982 calendar. The pictures have been taken directly from the screens of various computer graphics systems, and represent a cross section of our users' applications and technology. We are grateful to those who contributed and also to those whose contributions could not be used because of space limitations.

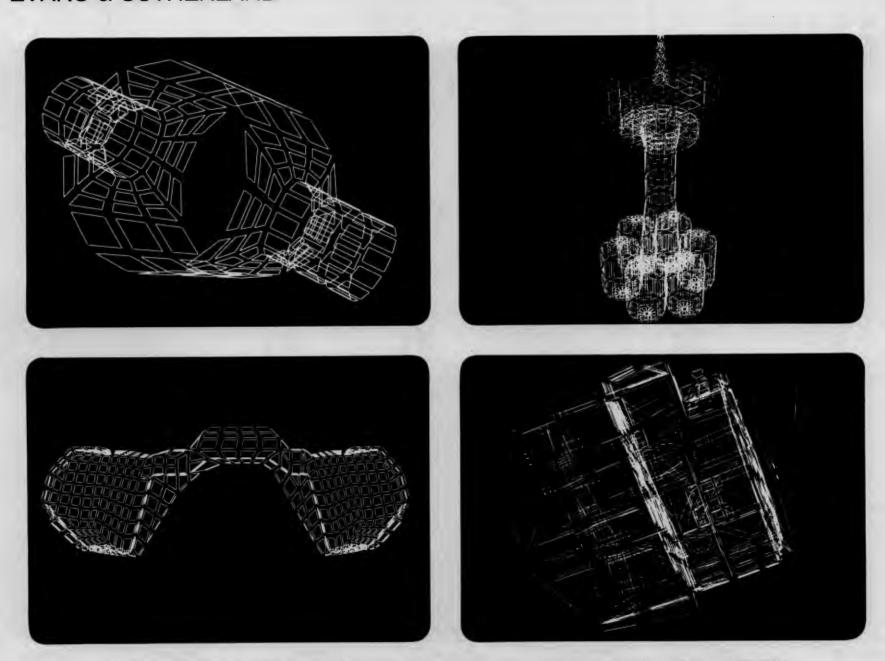
EVANS & SUTHERLAND



EVANS & SUTHERLAND-REDIFFUSION CT5 SYSTEM. These F-16 aircraft in formation flight were photographed directly from the CT5 system. CT5 is setting new standards for image quality and scene capacity in real-time flight simulation.

dec. 1981

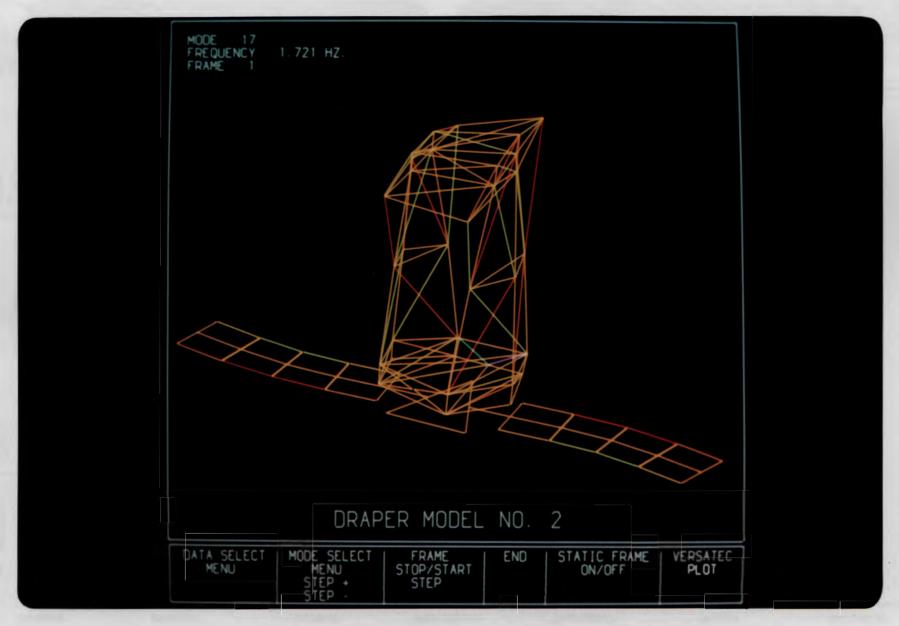
SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
NOVEMBER S M T W T 1 2 3 4 5 8 9 10 11 12 15 16 17 18 19 22 23 24 25 26 29 30	13 14 20 21	1	2	3	4	5
3	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	31	S M 3 4 10 11 17 18 24 25	JANUARY T W T F S 1 2 5 6 7 8 9 12 13 14 15 16 19 20 21 22 23 26 27 28 29 30



PDA ENGINEERING/PATRAN/PS 300. 1. The cylinder to cylinder intersection model is basically self descriptive, except PATRAN can calculate the actual geometric intersection of general shapes. 2. Structures such as this gravity-type offshore platform can be quickly generated and verified using PATRAN/PS 300. 3. A design interaction of the front cross-member for a typical lightweight automobile. 4. Modeling complex shapes such as this generator housing is a simple task using PATRAN/PS 300.

jan. 1982

MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
F S 3 4 5 0 11 12 7 18 19 4 25 26		S M 1 7 8 14 15 21 22 28	FEBRUARY T W T F S 2 3 4 5 6 9 10 11 12 13 16 17 18 19 20 23 24 25 26 27	New Year's	2
4	5	6	7	8	9
11	12	13	14	15	16
18	19	20	21	22	23
25	26	27	28	29	30
	F S 11 12 7 18 19 4 25 26 1 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	F S 11 12 7 18 19 4 25 26 1	F S S M 1 7 8 19 14 15 21 22 28 4 25 26 5 5 6 5 6 6 6 6 6 6 6 6 6 6 6 6 6	F S N T W T F S 1 2 3 4 5 6 7 18 19 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 24 25 26 27 27 28 26 27 27 28 27 27 28 27 27 28 27 27 28 27 27 28 27 27 28 27 27 28 27 27 28 27 27 28 27 27 28 27 27 28 27 27 28 27 27 28	F S N T W T S S N T W T S S N T W T S S S N T W T S S S N T W T S S S N T W T W T S S S T S T S S T S S T S S T S S T S S T S S T S



CHARLES STARK DRAPER LABORATORY. Design and analysis associated with real time control of Large Space Structures (LSS). The full spectrum color capability of the Multi Picture System is used to show stress of individual structural members. The final product is the actual active structural vibration control system hardware. The Multi Picture System is also used for flight simulation and power plant simulation.

feb. 1982

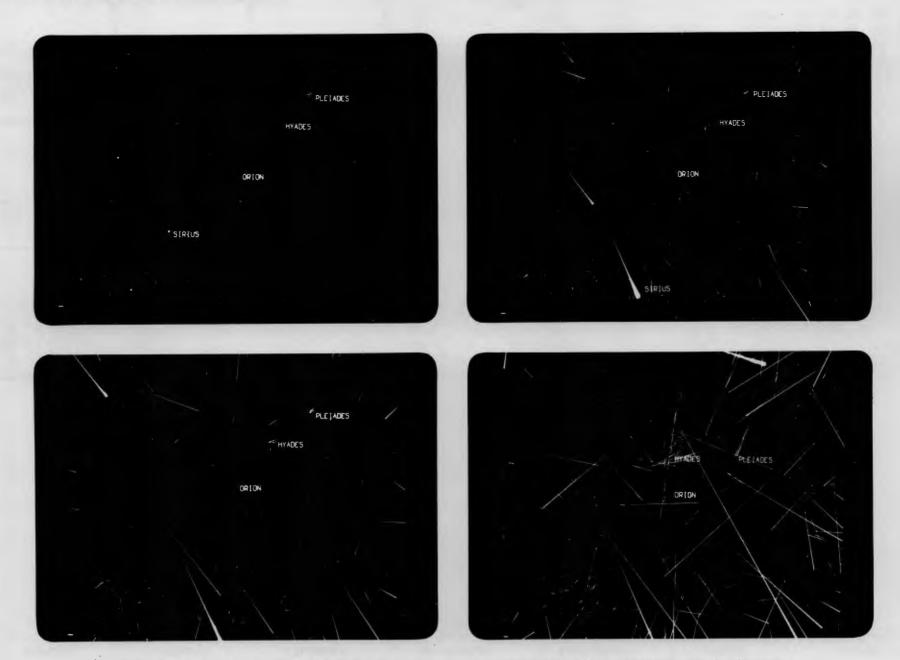
SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
	1	2	3	4	5	(3)
7	8	9	10	11	12	13
					Lincoln's Birthday	
14	15	16	17	18	19	20
21	22	23	24	25	26	27
	Washington's Birthd	ay				
28	SMTV	1 2 6 7 8 9 3 14 15 16			7 8 14 15 1	3 24 25 26 27



NOVOVIEW SP2-REDIFFUSION SIMULATION. Computer generated imagery as seen from the flight deck of an E3A (AWACS) simulator. Rediffusion has sold more than 230 NOVOVIEW systems to 56 customers in 30 countries.

mar. 1982

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
	1	2	3	4	5	(3)
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30	31	7 8 9 10 1 14 15 16 17 1	F S S M 4 5 6 1 12 13 4 5 8 19 20 11 12 5 26 27 18 19	1 2 3 5 6 7 8 9 10 2 13 14 15 16 17

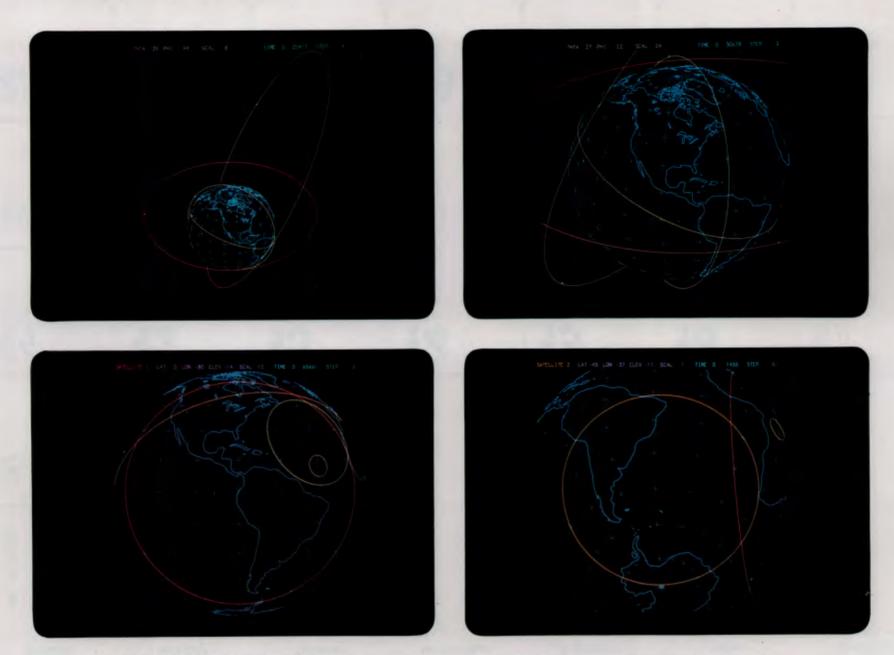


TIME TRAVEL is performed with the DIGISTAR digital planetarium projection system and is demonstrated by showing the proper motion and radial velocity of stars. The space velocity of each star is represented using a vector with a star at the bright end and its beginning point at the dim end. Using the DIGISTAR to travel forward in time, the illustrations show:

1. current date;
2. 32,000 years into the future;
3. 87,000 years into the future; and
4. 1,000,000 years into the future.

apr. 1982

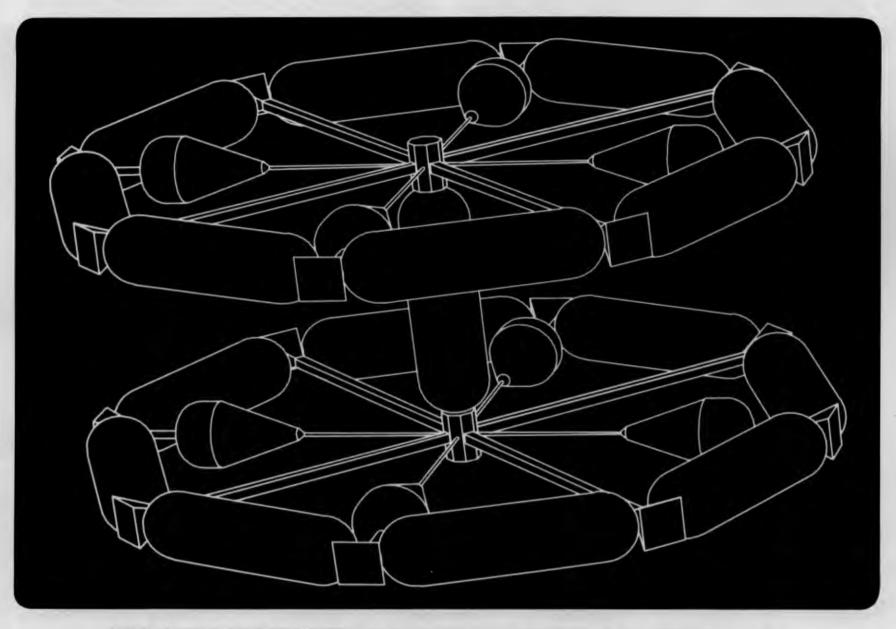
SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
MARCH S M T W 1 1 2 3 7 8 9 10 1 14 15 16 17 16 21 22 23 24 2 28 29 30 31	4 5 6 1 12 13 8 19 20	2 3	MAY T W T F S 1 4 5 6 7 8 11 12 13 14 15 18 19 20 21 22 25 26 27 28 29	1	2	3
4	5	6	7	8	9 Good Frida	10
11	4.0	10				+
11 Easter	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	



BOEING AEROSPACE COMPANY. A real-time, interactive, animated astrodynamics simulation on the color Multi Picture System done at the Boeing Aerospace Company by Peter W. Baker and Victor H. Leonard. Figure 1. shows an orthographic view of the earth with several satellites and their orbits. Figure 2. the same as Figure 1 except that the perspective viewing angle and magnification factor have been interactively modified by the operator. Figure 3. the viewing angle and magnification factor have been driven by the viewpoint of satellite 1 as it orbits the Earth. The local horizon of satellite 1 (centered on the Earth view) and its relation to the local horizons of various other satellites is shown. Figure 4. shows the local horizon of satellite 2 as it approaches the south polar region.

may 1982

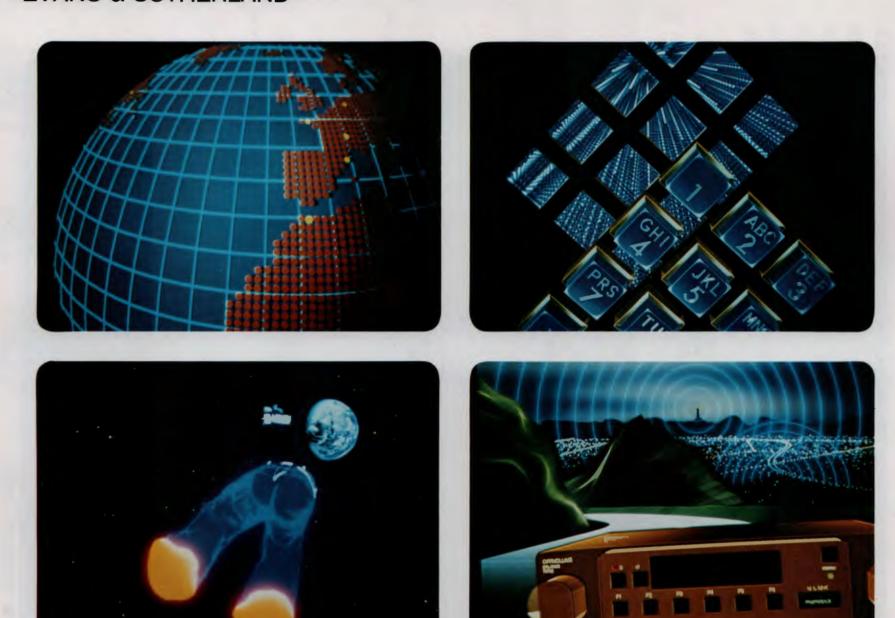
SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
APRIL S M T W 1 4 5 6 7 8 11 12 13 14 19 18 19 20 21 20 25 26 27 28 20	F S 1 2 3 8 9 10 5 16 17 2 23 24 9 30			S M 6 7 13 14 20 21 27 28	JUNE T W T F S 1 2 3 4 5 8 9 10 11 12 15 16 17 18 19 22 23 24 25 26 29 30	1
2	3	4	5	6	7	8
Mother's Day	10	11	12	13	14	15
16	17	18	19	20	21	22
23 / 30	24 31 Memorial Day	25	26	27	28	29



GRUMMAN DATA SYSTEMS CORPORATION. The Graphics Development Lab in Grumman is using ROMULUS, a 3-D solid modeling system, to portray a hypothetical space manufacturing facility. The station was designed to use empty external tanks of the space shuttle which are now jettisoned back to Earth. The facility, measuring 280 feet in diameter, would provide a zero gravity environment at the hub and a .2 Earth gravity environment in the peripheral tanks.

june 1982

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
S M T W T 2 3 4 5 6 9 10 11 12 13 16 17 18 19 20 23 24 25 26 27 30 31	14 15	1	2	3	4	5
3	7	8	9	10	11	12
13	14 Flag Da	15	16	17	18	19
20 Father's Day	21	22	23	24	25	26
27	28	29	30		4 11 1 18 1	



ROBERT ABEL AND ASSOCIATES: A collection from recent Picture System 2 work done by Robert Abel & Associates. Included are CBS Evening News, top left (Technical Director, John Hughes); AT&T Network, top right (Technical Directors, Allan Debevoise, Ron Saks); Levi's "Someday Santa," bottom left (Technical Director, Bill Kovacs); Phillips Autoradio, bottom right (Technical Director, Bill Kovacs).

july 1982

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
6 7 8 9 10	3 4 5 0 11 12 7 18 19	1 2 8 9 15 16	AUGUST T W T F S 3 4 5 6 7 10 11 12 13 14 17 18 19 20 21 24 25 26 27 28 31	1	2	3
Independence Day	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	31





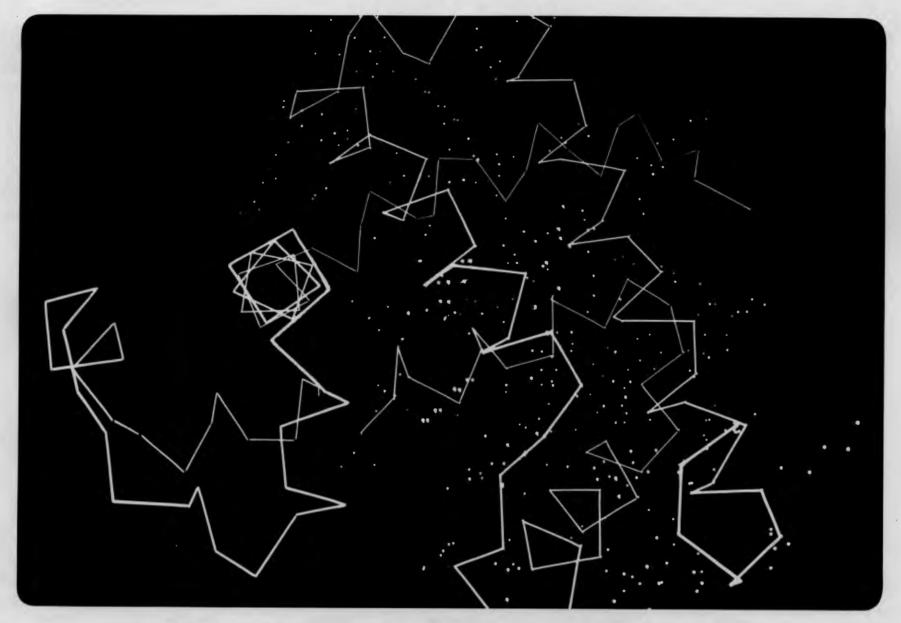




EVANS & SUTHERLAND CT5 SYSTEM. These scenes from CT5 illustrate the potential application of visual simulation in automotive engineering.

aug. 1982

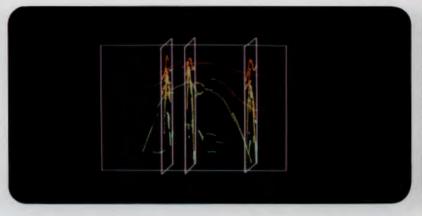
SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31	JULY S M T W 4 5 6 7 11 12 13 14 18 19 20 21 25 26 27 28	T F S 1 2 3 8 9 10 15 16 17 22 23 24 29 30 31	5 12 19	SEPTEMBER M T W T F S 1 2 3 4 6 7 8 9 10 11 13 14 15 16 17 18 20 21 22 23 24 25 27 28 29 30

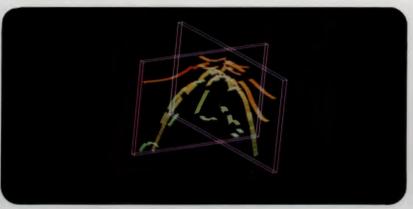


HERSHEY MEDICAL CENTER. Automatic recognition of domains in globular proteins. Shown is the helical muscle protein myoglobin. The solid line connects sequential a-carbon atoms in the backbone and the points represent side-chain atoms in domain 2. Depth cueing is indicated by display intensity which diminishes with increasing distance from the eye. In the lower right portion of the picture, the viewer is staring up the long axis of the B helix, oriented with its C-terminal end closer to the eye. Small numerals mark the C-terminal residues of domains 1 and 2. Courtesy of George Rose and Lyndon Hibbard, Department of Biological Chemistry, Hershey Medical Center of the Pennsylvania State University.

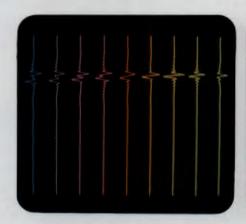
sept. 1982

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY	
S M T W 1 2 3 4 8 9 10 11 15 16 17 18	8 9 10 11 12 13 14		1	2	3		
5	4 Labor Da	7	8	9	10	11	
12	13	14	15	16	17	18	
19	20	21	22	23	24	25	
26	27	28	29	30	S M 3 4 10 11 17 18 24 25 31	1 2 5 6 7 8 9 12 13 14 15 16	





PETTY-RAY GEOPHYSICAL DIVISION, GEOSOURCE, INC. MAP is one of the seven integrated phases in the Cross-Dip Survey™ processing package. With it, cross dip "ribbons" which connect horizon picks from adjacent seismic profiles can be viewed on the Multi Picture System with color monitor from different angles to illustrate various features.





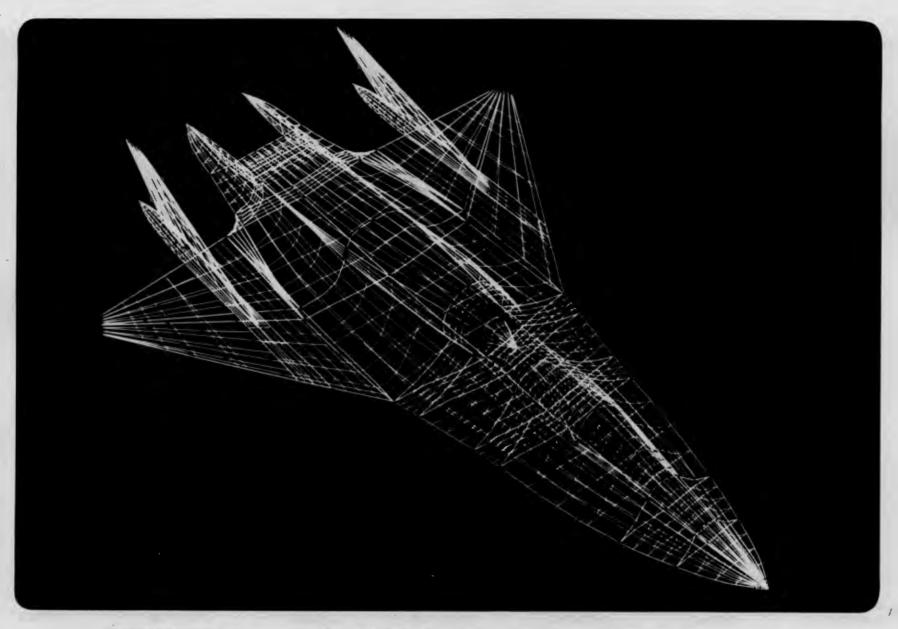




SYNCPX. Synthetic complex traces are computed for a simple wedge model, defined by two opposite polarity spikes whose time separation reduces from 32 msec to zero across eight traces. Data Passband is 10-80 Hz. A single spike reference trace is plotted on the right side of the display.

oct. 1982

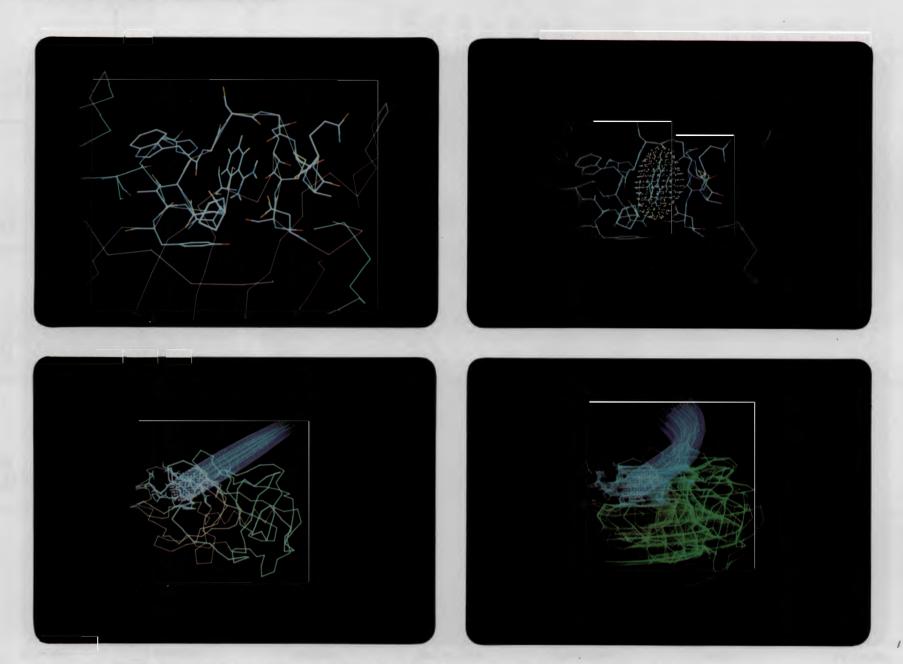
SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
SEPTEMBER S M T W T 1 2 5 6 7 8 9 12 13 14 15 16 19 20 21 22 23 26 27 28 29 30	F S 3 4 10 11 17 18		S M 1 7 8 14 15	NOVEMBER T W T F S 2 3 4 5 6 9 10 11 12 13 16 17 18 19 20 23 24 25 26 27 30	1	2
3	4	5	6	7	8	9
10	11	12 Columbus Day	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30
31						



GRUMMAN AEROSPACE, ADVANCED AIRCRAFT SYSTEMS. An advanced vehicle conceptual design using 3-D modeling on an Evans & Sutherland PS 300.

nov. 1982

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
	1	2	3	4	5	8
7	8	9	10	11	12	13
1.1	48		47	Veterans' Day	40	
14	15	16	17	18	19	20
21	22	23	24	25	26	27
				Thanksgiving Day		
28	29	30		T F S 1 2 7 8 9 4 15 16 1 22 23	S M T 5 6 12 13 14 19 20 2 26 27 26	1 2 3 4 7 8 9 10 11 4 15 16 17 18 1 22 23 24 25



MERCK SHARP & DOHME RESEARCH LABORATORIES. Pictures shown here from an animation on the Merck Macromolecular Graphics Facility's Multi Picture System with color monitor. G. M. Smith uses the GRAMPS software package written by T. J. O'Donnell of the National Resources for Computation in Chemistry (color added by B. L. Bush of Merck). Trypsin and benzamidine coordinates of H. Fehlhammer, W. Bade and P. Schwager from the Brookhaven Protein Data Bank. Top left, inhibitor bound to enzyme active sight. Top right, molecular surface of inhibitor added. Bottom left, simulation of inhibitor "docking." Bottom right, "docking" with rotation.

dec. 1982

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
7 8 9 10 1 14 15 16 17 1	F S S M 4 5 6 1 12 13 2 3	JANUARY T W T F S 1 4 5 6 7 8 11 12 13 14 15 18 19 20 21 22 25 26 27 28 29	1	2	3	4
<u> </u>	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30	31	Christma



EVANS & SUTHERLAND-REDIFFUSION CT5 SYSTEM. The complex surface curvature of this Boeing 707 is realistically depicted by CT5. Fidelity of the computed image is further enhanced by subtle detail in the runway and airport.

jan. 1983

12 13 14 15 1	T F S 2 3 4 9 10 11 16 17 18 23 24 25	TUESDAY	WEDNESDAY	13 14	FEBRUARY T W T F S 1 2 3 4 5 8 9 10 11 12 15 16 17 18 19 22 23 24 25 26	SATURDAY New Year's
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23 / 30	24	25	26	27	28	29